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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/524,692

10/17/2006

Seiichi Okuda

KUD-002

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32628

7590

10/02/2008

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EXAMINER

MCLEARN, STEPHANIE D

ART UNIT

PAPER NUMBER

4157

MAIL DATE

DELIVERY MODE

10/02/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/524,692	Applicant(s) OKUDA ET AL.	
	Examiner STEPHANIE MCLAREN	Art Unit 4157	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 October 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 7-9 is/are rejected.
- 7) ☒ Claim(s) 3-6 and 10-13 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 December 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>2/15/05;10/17/06</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. Claim 5 recites the limitation "said heating unit" in line 3. There is insufficient antecedent basis for this limitation in the claim.
2. Claim 6 recites the limitation "said heater" in line 2. There is insufficient antecedent basis for this limitation in the claim.
3. Claim 12 recites the limitation "said heating unit" in line 3. There is insufficient antecedent basis for this limitation in the claim.
4. Claim 13 recites the limitation "said heater" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1,2 & 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Okuda (JP 2003-302116 A, Machine Translation).

With regards to claim 1, Okuda discloses: An air refrigerant type freezing and heating apparatus comprising: a compressing mechanism which compresses an air refrigerant (22, pg. 4, paragraph 12, line 2); a heating unit (23) which heats a first object

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(11, warm room) by said air refrigerant outputted from said compressing mechanism; a heat exchanger (24) which cools said air refrigerant outputted from said heating unit; a turbine (25) which expands said air refrigerant outputted from said heat exchanger; and a cooler (cold formation means, pg. 3, paragraph 7, line 2-3) which cools a second object (12, cold room) different from said first object by said air refrigerant outputted from said turbine.

With regards to claim 2, Okuda discloses: wherein said compressing mechanism is composed of a single compressor (22, see fig. 3).

With regards to claim 8, Okuda discloses: The air refrigerant type freezing and heating apparatus according to claim 1, wherein the compressing mechanism is a compressor which rotates coaxially with said turbine (pg. 3, paragraph 10), said air refrigerant taken in from said cooler (cold formation means) is supplied to a low-temperature side flow passage of said heat exchanger (24, see fig. 3), and said air refrigerant outputted from said low-temperature side flow passage is directly supplied to said compressor (22, see fig. 3).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 7 & 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okuda in view of Ishii (JP 2003-083634 A, Machine Translation).

With regards to claim 7, Okuda discloses: a compressing mechanism which compresses an air refrigerant (22, pg. 4, paragraph 12, line 2); a heating unit (23) which heats a first object (11, warm room) by said air refrigerant outputted from said compressing mechanism; a heat exchanger (24) which cools said air refrigerant outputted from said heating unit; a turbine (25) which expands said air refrigerant outputted from said heat exchanger; and a cooler (cold formation means) which cools a second object (12, cold room) different from said first object by said air refrigerant outputted from said turbine.

Okuda fails to disclose: a regenerator which is filled with an absorbent absorbing a refrigerant different from the air refrigerant, heats and evaporates said refrigerant mixed in said absorbent by using said air refrigerant outputted from said compressing mechanism; a condenser which condenses said refrigerant evaporated by said regenerator; an evaporator which evaporates said refrigerant condensed by said condenser and cools a third object by heat of evaporation; and an absorber which allows said absorbent outputted from said regenerator to absorb said refrigerant evaporated by said evaporator and outputs said absorbent to said regenerator.

Ishii teaches: a regenerator which is filled with an absorbent absorbing a refrigerant different from the air refrigerant (pg. 3, paragraph 8), heats and evaporates

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said refrigerant mixed in said absorbent by using said air refrigerant outputted from said compressing mechanism (pg. 4, paragraph 13); a condenser which condenses said refrigerant evaporated by said regenerator (22, pg. 4, paragraph 12); an evaporator which evaporates said refrigerant condensed by said condenser and cools a third object by heat of evaporation (24, pg. 4, paragraph 14); and an absorber which allows said absorbent outputted from said regenerator to absorb said refrigerant evaporated by said evaporator and outputs said absorbent to said regenerator (pg. 3, paragraph 8).

While Okuda teaches the cold formation means being merely an expansion turbine, to achieve truly low temperatures by this method would require a very high COP, quite likely impossibly so. Therefore, in order to decrease the temperature of the refrigerant quickly and efficiently, a method of secondary cooling is required. Absorption refrigeration is a well known method of achieving high cooling power at low electrical cost, making it an obvious choice for a secondary cooling method.

With regards to claim 9, Okuda discloses: wherein said compressing mechanism is composed of a single compressor (22, see fig. 3).

Allowable Subject Matter

9. Claims 3-6 & 10-13 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Patent Number 5,644,928 [an example of an air refrigerant system designed for forming ice/freezing, as opposed the refrigeration shown in Okuda, showing the state of the art in such matters].

Any inquiry concerning this communication or earlier communications from the examiner should be directed to STEPHANIE MCLAREN whose telephone number is (571)270-7127. The examiner can normally be reached on Monday - Friday 7:30 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marvin Lateef can be reached on (571) 272-5026. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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/SDM/

9/25/08

/Zelalem Eshete/

Primary Examiner, Art Unit 3748